

2211 W. Meadowview Rd., #101 Greensboro, NC 27409

tel: 336/323-0092 fax: 336/323-0093 www.JoyceEngineering.com

April 2, 2013

Ms. Jaclynne Drummond
Compliance Hydrogeologist
NC Department of Environment and Natural Resources
Division of Waste Management – Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646



RE: Completion of Landfill Gas Monitoring Probe Installations
Town of Kernersville Landfill, Permit No. 34-04
Forsyth County, North Carolina
JOYCE Project No. 838.1201.12, Task No. 03

Dear Ms. Drummond:

On behalf of the Town of Kernersville, Joyce Engineering, is submitting the enclosed boring logs for Landfill Gas (LFG) monitoring probes GW-6, GW-7, and GW-8, installed on March 8, 2013 as requested by the Solid Waste Section. These probes were installed in accordance with the LFG Monitoring Plan. In addition, a LFG Monitoring Network site map has been included to identify the locations of the recently installed probes.

Please feel free to contact me or Larry Hineline at (336) 323-0092 if you have any questions regarding this submittal.

Respectfully,

**JOYCE ENGINEERING** 

Adam Cox Field Consultant

Attachments: Joyce Boring Logs for GW-6, GW-7, GW-8

Driller Boring Logs for GW-6, GW-7, and GW-8

LFG Monitoring Network Site Map

Copy: Christine Ritter, DENR

Thad Buck – Town of Kernersville



#### LOG OF BORING GW-6

(Page 1 of 1)

Kernersville closed	LF
Kernersville NC	

35-

Date Started : 3/8/2013 Date Completed Hole Diameter : 2 inch

Drilling Company : Geologic Exploration, Inc.

: 3/8/2013 Northing Coord. Westing Coord. JOYCE Project No.838.1301.12 Task 03 Survey By Drilling Method : Geo Probe Logged By : A. Cox Sampling Method Blow Count Well: GW-6 TOC Elev.: Depth Surf. % Rec. SOSO Well Construction **DESCRIPTION** Elev. in Information Feet 0top soil and gravel WELL CONSTRUCTION Date Compl. Hole Diameter(s) Drilling Method(s) -Bentonite Seal : 2-inch : Geo Probe (0'-3')Company Rep.
Drilling Method(s)
Company Rep. -Riser Pipe (-3'-5')WELL CASING 5-: Schedule 40 PVC : 1-inch : Threaded, flush Material red clay, sticky, silty Diameter Joints Approx. Csg. Stickup: 3-feet WELL SCREEN dark organic layer, moist : Schedule 40 PVC Material : 1-inch : Threaded, flush : 0.010 inch Diameter -Sand Pack (3'-18') tan sandy clay Joints 10-Opening sandy, tan GRAVEL PACK -Screen (5'-18') : # 2 Sand Type WELL SCREEN SEAL : Bentonite Туре ANNULUS SEAL tan, orangish, sandy clay Type 15-PROTECTIVE CSG. sandy pulverized rock Type WELL PAD moist, sandy Туре TD @ 18' Temporary probe 20-25-30-





#### LOG OF BORING GW-7

(Page 1 of 1)

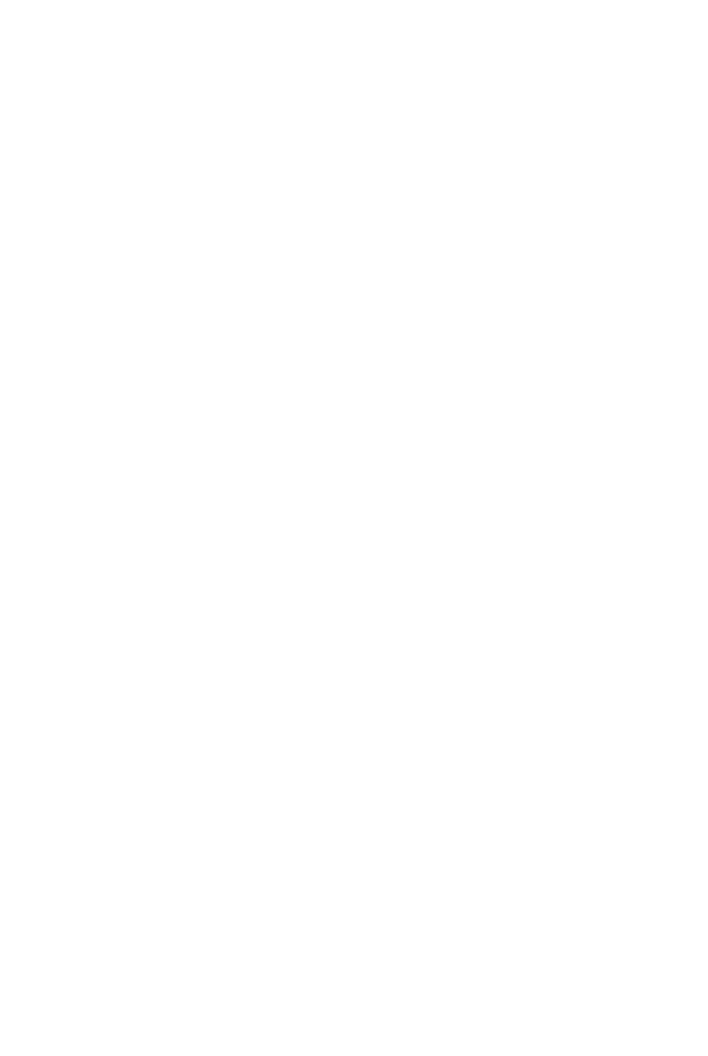
Kernersville closed	L
Kernersville NC	

Date Started

Date Completed : 3/8/2012 : 3/8/2012

Drilling Company : Geologic Exploration, Inc. Northing Coord

Kernersville NC  JOYCE Project No.838.1301.12 Task 03			Date Completed Hole Diameter Drilling Method Sampling Method	: 3/8/2012 : 2 inch : Geo Prob	e	Wes Surv	thing Coord. : sting Coord. : vey By : ged By :	A. Freeman			
Depth in Feet	Surf. Elev.	Blow Count	% Rec	nscs	DESC red clay	RIPTION	Well: C				onstruction rmation TION : 3/8/2012 : 2-inch : Geo Probe
5 - 1					red clay, sandy d	ry		Riser Pipe (-3'-5')	( ) ( ) ( ) ( )	Company Rep. Drilling Method(s) Company Rep. WELL CASING Material Diameter Joints Approx. Csg. Stickup WELL SCREEN	: Schedule 40 PVC : 1-inch : Threaded, flush ): 3-feet
10-					dry sandy clay dry sandy, red sa	ind			[ ]   ( )	Material Diameter Joints Dpening GRAVEL PACK Type WELL SCREEN SEA Type ANNULUS SEAL	: Schedule 40 PVC : 1-inch : Threaded, flush : 0.010 inch :
15-					red, moist, clay			Sand Pack (4'-30') Screen (5'-30')	F V T	Fype PROTECTIVE CSG. Fype WELL PAD Fype Femporary probe	:
20					dry sand tan sand			·			
30-					dry reddish sand						
					-						





### LOG OF BORING GW-8

(Page 1 of 1)

Kernersville closed	LF
Kernersville NC	

Date Started : 3/8/2012 Date Completed : 3/8/2012

: Geologic Exploration, Inc. Drilling Company Northing Coord.
Westing Coord.

JOY	′CE Proj	ect N			01.12 Task 03	Hole Diameter Drilling Method Sampling Method	: 2 inch : Geo probe :	Westing Coord. Survey By Logged By	: : : A. Cox
Depth in Feet	Surf. Elev.	Blow Count	% Rec	SOSO		RIPTION	Well: GW-8 TOC Elev.:	lr	Construction
10					red silty clay  red silty clay  tan sandy pulveri  tan/white sand, p quartz  refusal @ 28'		Bentonite Seal (0'-4') Riser Pipe (-3'-5')  Sand Pack (4'-28') Screen (5'-28')	WELL CONSTRI Date Compl. Hole Diameter(s) Drilling Method(s Company Rep. Unilling Method(s Company Rep. WELL CASING Material Diameter Joints Approx. Csg. Stic WELL SCREEN Material Diameter Joints Opening GRAVEL PACK Type WELL SCREEN Type ANNULUS SEAL Type PROTECTIVE CS Type WELL PAD Type Temporary probe	: 3/8/2012 : 2-inch ) : Geo Probe : Schedule 40 PVC : 1-inch : Threaded, flush :kup : 3-feet  : Schedule 40 PVC : 1-inch : Threaded, flush : 0.010 inch :: SEAL : Bentonite





# Non Residential well construction record

North Carolina Department of Environment and Natural Resources- Division of Water Quality

### WELL CONTRACTOR CERTIFICATION # 2581

1. WELL CONTRACTOR:	d. TOP OF CASING IS 0.0 FT. Above Land Surface"
BRIAN THOMAS	*Top of casing terminated at/or below land surface may require
Well Contractor (Individual) Name	a variance in accordance with 15A NCAC 2C .0118.
GEOLOGIC EXPLORATION, INC	e. YIELD (gpm): N/A METHOD OF TEST N/A
Well Contractor Company Name	f. DISINFECTION: Type N/A Amount N/A
176 COMMERCE BLVD Street Address	
STATESVILLE NC 28625	g. WATER ZONES (depth): Top Bottom Top Bottom
City or Town State Zip Code	
Accessor from Statistical International Control of Cont	TopBottomTopBottom
(704) 872-7686	TopBottomBottom
Area code Phone number	Thickness/
2. WELL INFORMATION:	7. CASING: Depth Diameter Weight Material
WELL CONSTRUCTION PERMIT#	Top 0.0 Bottom 5.0 Ft. 1 INCH SCH 40 PVC
OTHER ASSOCIATED PERMIT#(if applicable)	TopBottomFt
SITE WELL ID #(if applicable) GP-6	Top Bottom Ft
3. WELL USE (Check One Box) Monitoring  Municipal/Public	8. GROUT: Depth Material Method
Industrial/Commercial	TopBottomFt
Irrigation ☐ Other for (list use) _ GAS PROBE	TopBottomFt
DATE DRILLED 03/08/13	Top Bottom Ft
4. WELL LOCATION:	: : 9, SCREEN: Depth Diameter Slot Size Material
9500 FREEMAN ROAD 27284	Top 5.0 Bottom 18.0 Ft. 1.0 in010 in. PVC
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)	Top Bottom Ft. in. in.
CITY: KERNERSVILLE COUNTY FORSYTH	Top Bottom Ft in in in
TOPOGRAPHIC / LAND SETTING: (check appropriate box)	10pB0((0))
Stope □Valley ☑Flat □Ridge □Other	10, SAND/GRAVEL PACK:
	Depth Size Material
LATITUDE 36 • 11 • 36.8800 • DMS OR DD	Top 4.0 Bottom 18.0 Ft 20-40 FINE SILICA SAND
LONGITUDE 80 ° 2 ' 11.1000 " DMS OR DD	: Top Bottom Ft
Latitude/longitude source: GSPS	TopBottomFt
(location of well must be shown on a USGS topo map andattached to this form if not using GPS)	
5. FACILITY (Name of the business where the well is located.)	11. DRILLING LOG Top Bottom Formation Description
er i recordina de ano odonicos misio are non la locateda.)	
KERNERSVILLE LANDFILL N/A	0.0 / 12.0 RED SILTY CLAY
Facility Name Facility ID# (if applicable)	: 12.0 / 25.0 TAN SILTY CLAY
9500 FREEMAN ROAD	
Street Address	
KERNERSVILLE         NC         27284           City or Town         State         Zip Code	:
	:
TOWN OF KERNERSVILLE Contact Name	
720 MCKAUGHAN STREET	· · · · · · · · · · · · · · · · · · ·
Mailing Address	: /
KERNERSVILLE NC 27285	
City or Town State Zip Code	
	: 12. REMARKS:
Area code Phone number	BENTONITE SEAL FROM 0.0 TO 4.0 FEET
	I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH
S. WELL DETAILS:	154 ACAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS     RECEND HAS BEEN PROVIDED TO THE WELL OWNER.
a. TOTAL DEPTH: 18.0 FEET	:/\ _
b. DOES WELL REPLACE EXISTING WELL? YES NO D	SIGNATURE OF CENTIFIED WELL CONTRACTOR DATE
c. WATER LEVEL Below Top of Casing: DRY FT.	: BRIAN THOMAS
(Use "+" if Above Top of Casing)	PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Submit within 30 days of completion to: Division of Water Quality - Information Processing, 1617 Mail Service Center, Raleigh, NC 27699-161, Phone : (919) 807-6300

Form GW-1b Rev. 2/09



# North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 2581

1. WELL CONTRACTOR: BRIAN THOMAS	d. TOP OF CASING IS 0.0 FT. Above Land Surface*  *Top of casing terminated at/or below land surface may require
Well Contractor (Individual) Name	a variance in accordance with 15A NCAC 2C .0118.
GEOLOGIC EXPLORATION, INC	e. YIELD (gpm): N/A METHOD OF TEST N/A
Well Contractor Company Name	•
176 COMMERCE BLVD	f. DISINFECTION: Type N/A Amount N/A
Street Address	g. WATER ZONES (depth):
STATESVILLE NC 28625	TopBottomTopBottom
City or Town State Zip Code	TopBottomTopBottom
(704 ) 872-7686	TopBottomTopBottom
Area code Phone number	Thickness/
2. WELL INFORMATION:	7. CASING: Depth Diameter Weight Material
WELL CONSTRUCTION PERMIT#	Top 0.0 Bottom 5.0 Ft. 1 INCH SCH 40 PVC
•	TopBottomFt
OTHER ASSOCIATED PERMIT#(if applicable)	Top Bottom Ft.
SITE WELL ID #(if applicable) GP-7	
3. WELL USE (Check One Box) Monitoring ☐ Municipal/Public ☐	8, GROUT: Depth Material Method
Industrial/Commercial	TopBottomFt
Imgation Other (list use) GAS PROBE	TopBottomFt
DATE DRILLED 03/08/13	Top Bottom Ft
4. WELL LOCATION:	: 9. SCREEN: Depth Diameter Slot Size Material
9500 FREEMAN ROAD 27284	Top 5.0 Bottom 30.0 Ft. 1.0 in010 in. PVC
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)	TopBottomFtiniri
CITY: KERNERSVILLE COUNTY FORSYTH	TopBottomFtinin
TOPOGRAPHIC / LAND SETTING: (check appropriate box)	
□Slope □Valley □Flat	10. SAND/GRAVEL PACK:
LATITUDE 36 • 11 • 37.7300 * DMS OR DD	Depth Size Material
LONGITUDE 80 *2 · 17.8000 * DMS OR DD	Top         4.0         Bottom         30.0         Ft. 20-40         FINE SILICA SAND           Top         Bottom         Ft.
Latitude/longitude source: SPS Topographic map	
(location of well must be shown on a USGS topo map andattached to	TopBottomFt
this form if not using GPS)	11, DRILLING LOG
5. FACILITY (Name of the business where the welt is located.)	: Top Bottom Formation Description
	0.0 / 8.0 RED SILTY CLAY
KERNERSVILLE LANDFILL N/A Facility Name Facility ID# (if applicable)	8.0 / 19.0 TAN SILTY CLAY
Facility Name Facility ID# (if applicable) 9500 FREEMAN ROAD	19.0 / 30.0 PARTIALLY WEATHERED ROCK
Street Address	: 13.0 1 30.0 THE THE TENTE TO SEE
KERNERSVILLE NC 27284	: /
City or Town State Zip Code	
TOWN OF KERNERSVILLE	: /
Contact Name	: /
720 MCKAUGHAN STREET	
Mailing Address	
KERNERSVILLE NC 27285	
City or Town State Zip Code	AD DESIADIO.
	: 12. REMARKS: : BENTONITE SEAL FROM 0.0 TO 4.0 FEET
Area code Phone number	DENTORIE SEAL INOR OVIVE TO LEE
S. WELL DETAILS:	I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH
a. TOTAL DEPTH: 30.0 FEET	RECORD HAS BEEN PROVIDED TO THE WELL OWNER.
	Dais Who 03/11/13
b. DOES WELL REPLACE EXISTING WELL? YES NO G	SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE
c. WATER LEVEL Below Top of Casing: DRY FT.  (Use "+" if Above Top of Casing)	BRIAN THOMAS PRINTED NAME OF PERSON CONSTRUCTING THE WELL

	The comment of the second second
Submit within 30 days of completion to: Division of Water Quality	<ul> <li>Information Processing.</li> </ul>
1617 Mail Service Center, Raleigh, NC 27699-161, Phone : (919) 807-6300	그는 이번 시간 전략이 학교원이는 경설로 수를 받았다.
	그렇게 하는 아이들은 사람이 가지만 다 나를 했다.
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Form GW-1b Rev. 2/09



## $\underline{NonResidential}$ well construction record

North Carolina Department of Environment and Natural Resources- Division of Water Quality

## WELL CONTRACTOR CERTIFICATION # 2581

1, WELL CONTRACTOR: BRIAN THOMAS			d. TO		ASING IS				nd Surface* nce may require
Well Contractor (Individual) Name			:		riance in accor				
GEOLOGIC EXPLORATION, INC			:						
Well Contractor Company Name			e. YIE	ELD (gp	om): <u>N/A</u>	ME	THOD (	OF TEST	N/A
176 COMMERCE BLVD			f. DIS	SINFEC	TION: Type	N/A		_ Amount _	N/A
Street Address			in W	ATER 7	ONES (depth)				
STATESVILLE	NC	28625			Bottom		Ton	Bot	Hom
City or Town	State	Zip Code							ttom
- -					Bottom				
704 872-7686			Top		Bottom		Top	Bol	tlom
Area code Phone number			i					Thicknes	
2. WELL INFORMATION:			•		Depth		ameter	_	
WELL CONSTRUCTION PERMIT#			<u> </u>		Bottom 5.0				
OTHER ASSOCIATED PERMIT#(if applicable)		·	Top		Bottom				
SITE WELL ID #(if applicable) GP-8			: Top		Bottom	_ FI			
3. WELL USE (Check One Box) Monitoring   Mu	nicipal/Pu	ublic 🛚	8. GR	OUT:	Depth		Materia	al	Method
Industrial/Commercial	ery 🗀 Ini	ection []	Top	I	Bottom	_Ft			
Irrigation Other (list use) GAS PROBE	: · · ·	_	: Top	£	Bottom	_ Ft			
DATE DRILLED 03/08/13			Тор	E	Bottom	_Ft			
. WELL LOCATION:			: : 9 SCI	RFFN.	Depth	Dian	neter	Slot Size	Material
9500 FREEMAN ROAD 27284			•		-				PVC
Street Name, Numbers, Community, Subdivision, Lot No.	, Parcel, Z	ip Code)							
•		•							
CITY: KERNERSVILLE COUNT			Top	&	Bottom	_ Ft	in.	ın.	
TOPOGRAPHIC / LAND SETTING: (check appro			40 64	MDICD	AVEL PACK:				
□Slope □Valley □Flat □Ridge □Other_			10. SA		Depth		Size	Materi	ial
LATITUDE 36 • 11 • 37.4300 • DMS OR		DD	: Ton		Bottom <u>28.0</u>	Ft 2			
LONGITUDE 80 • 2 • 22.0600 * DMS OR		DD	: Top						
Latitude/longitude source:   GPS   Gropograph	nic map		Top		Bottom				
(location of well must be shown on a USGS topo this form if not using GPS)	map and	attached to	:						
FACILITY (Name of the business where the well	ie Incaled	13	•	RILLING	LOG Bottom		Form	ation Descrip	ntion
Transacti (name of the addition while the field	is iocaled	·- <i>)</i>	: Top	ε.	ooton			·	A1011
KERNERSVILLE LANDFILL	N/A		0.0	/_	7.0	RE	D SILT	Y CLAY	
Facility Name Facil	ity ID# (if	applicable)	7.0		17.0	-		Y CLAY	
9500 FREEMAN ROAD			<u>17.0</u>	<u>0_/_</u>	28.0	PA	RTIALL	Y WEATHE	RED ROCK
Street Address			:	/_					
KERNERSVILLE		27284	:						
City or Town	State	Zip Code	:	/_					
OWN OF KERNERSVILLE			:	/_					
Contact Name			:	!_	·····				
20 MCKAUGHAN STREET			:	!					
Mailing Address			:	!_					
KERNERSVILLE	NC	27285	:	/_					
City or Town	State	Zip Code	12. REI	MARKS	<b>5</b> :				
)			BENT	ONITE	SEAL FROM	0.0 TO	4.0 FEE	<u> </u>	
ea code Phone number			·						
WELL DETAILS:			I DO HER	EBY CER	TIFY THAT THIS V	VELL WA	S CONST	RUCTED IN AC	CORDANCE WITH BY OF THIS
a. TOTAL DEPTH: 28.0 FEET		•			EN PROVIDED TO				1011110
b. DOES WELL REPLACE EXISTING WELL?	YES []	NO ⊡∕	SIGNA	TURE C	F CERTIFIED	WELL	CONTR	RACTOR	03/11/13 DATE
c. WATER LEVEL Below Top of Casing: DR	Y	FT.	:						
(Use "+" if Above Top of Casing)				IN THO	MAS LE OF PERSO	N CON	STRUC	TING THE V	VELL

Submit within 30 days of completion to: Division of Water Quality - Information Processing, 1617 Mail Service Center, Raleigh, NC 27699-161, Phone : (919) 807-6300

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